its own hands. And it is befitting us as a scientific and surgical body to once more take the lead and point the way to the surgical world to the one great reform remaining in the perfection of our technic.

LESSONS IN DIETETICS

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(Continued from page 906)

FOODS DERIVED FROM MILK

(Whey, Cream, Butter, Buttermilk, Koumiss, Casein Preparations, Cheese)

WHEY is the fluid which exudes from clotted milk. It may be prepared by adding to thirty ounces of milk, heated to 104° F., two teaspoonfuls of rennet and setting aside in a warm place for a few moments till clotting has occurred. The clot must then be broken up very thoroughly by stirring and the whole strained through muslin. About twenty-two ounces of whey should be obtained. It is composed of: water, 93.64 per cent.; proteid, 0.82 per cent.; fat, 0.24 per cent.; sugar, 4.65 per cent.; mineral matter, 0.65 per cent.

Whey can also be made by precipitating the casein by means of an acid, *i.e.,* a sour wine; by Fairchild's essence of pepsin, or by alum. Whey has but small nutritive value but is often an aid in the feeding of infants.

Cream. Cream consists essentially of the fat of milk, containing also proteid and sugar in fully as high proportion as milk itself. The real difference between milk and cream is that in the latter some of the water of the milk has been replaced by fat. In a physiological sense, cream is chiefly to be regarded as fuel food. It has been calculated that a pint of it should yield about 1425 calories or about as much as one and a half pounds of bread or one and a half dozen of bananas or four and a half pounds of potatoes.

In sick-room diet, it is an important aid in getting fat into the system, for it is a very easily digested form of fat. Cream, however, is not an economical source of fat.

Butter. Butter is produced from cream by churning. The flavor and aroma of butter are due to the growth of organisms in the cream during ripening; butter prepared from pasteurized cream is devoid of

flavor. The trace of casein which remains in the butter may decompose on keeping and is apt to turn the butter rancid. The presence of water in the butter facilitates this change. The exact amount of fat in butter varies but averages about 82 per cent., or twice as much as the amount in cream. Butter is the most easily digested of fatty foods and is, therefore, of great value in the diet of sickness. As far as nourishment is concerned, a pound of drippings is more than the equal of a pound of butter and costs only half as much.

Buttermilk. The sourness of buttermilk is due to the presence of lactic acid, of which, however, it does not contain more than ¼ to ⅓ per cent. The chief point in which it differs from milk is its poverty in fat. In this respect it resembles skim milk. The loss of milk-sugar from the formation of lactic acid is too small to be of any significance. It is easily digested owing to the absence of fat and to the fact that its casein is present in a finely floculent form. Its nutritive value is considerable, an ordinary glassful yielding about as much nourishment as two ounces of bread.

Koumiss. Koumiss is fermented mare's milk. Kephir is a more modern substitute for it, produced from the milk of the cow. Kephir is much more easily digested than raw cow's milk.

Casein Preparations. In practical dietetics, the want of a tasteless, compact, easily digested and moderately cheap preparation of pure proteid is often felt. Casein is admirably adapted to meet these requirements. Pure casein is prepared on a large scale and forms a white powder not unlike flour and is termed protein flour.

Sanose is a powder consisting of 80 per cent. of pure casein and 20 per cent. of albumose derived from white of egg.

Plasmon consists of proteids of milk rendered soluble by combination with bicarbonate of soda.

The nutritive value of these preparations is undoubtedly very high, containing as they do fully 90 per cent. of pure proteid.

Cheese. Cheese consists essentially of the casein and fat of milk. It may be prepared in two ways:

1. The milk may be allowed to clot under the influence of rennet. If pure milk be so treated, the resulting cheese will contain most of the fat, *e.g.*, cheddar,—and the proportion of fat may be rendered still greater by adding cream to the milk, *e.g.*, some forms of stilton. In other cases, part of the cream is removed by skimming. In that case the cheese will be proportionately poor in fat, *e.g.*, some Dutch cheeses.

2. The casein may be precipitated by allowing the milk to become sour or by adding to it an acid, such as vinegar. Under these circum-

stances the casein carries down with it but little fat and the cheese produced is a "lean" cheese, *e.g.*, some Dutch and German cheeses.

After being submitted to pressure, the cheese is allowed to "ripen." This process is brought about by the agency of bacteria and results in chemical changes in the casein which are not as yet perfectly understood.

The infiltration of cheese with the fat which it contains must always render it an article of diet not easily dealt with by delicate stomachs, for the fat forms a waterproof coating, which prevents the access of the digestive juices to the casein.

One reason for the disagreeable effects which cheese is apt to produce in the stomach is that, in the process of ripening, small quantities of fatty acids are produced, and these are always irritating. The addition of an alkali in the solution of the cheese will neutralize these and render them less harmful. It is only in the stomach that the difficulty of digesting cheese occurs; once in the intestine, it is absorbed as easily and completely as meat. Cheese is of high nutritive value. One pound of good cheese represents the total casein and most of the fat in a gallon of milk.

LIFE'S EXAMINATIONS

THOUSANDS of graduates are going out this summer from school and college with a keen sense of relief because examinations are over. They are greatly mistaken. They are entering on the period of examinations, but of what will be to them a new description. The school has asked them, What do you know? Life will ask them, What can you do? And Life accepts no excuses.

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Scholarship is not an end, it is a means to an end. The end is life—ability to serve and ability to enjoy. For to enjoy life is perhaps as important as to minister to it, and to be is certainly more important than to do. And yet these are not contrasted ends. For ability to achieve valuable service is the best test of character, and the secret of unfailing enjoyment of life in one's self is ability to minister to the life of others. These are the two questions which life is always putting to us, What capacity have you to do and what to enjoy? and every day is an examination day. The real test of a school or college is not, How much do its pupils know? but, How well equipped are they for joyous, serviceable living?—*The Outlook.*